Region 1 FY 2011 Invasive Species Control Program Proposal Format

Please provide 1-2 page proposals addressing the following criteria:

Refuge/complex name: Turnbull NWR / Inland Northwest National Wildlife Refuge Complex

Project title: Palouse Prairie Restoration Adaptive Management Study

Project description:

In 2008, Turnbull NWR received a $40K grant to implement a program to develop strategies to control invasive species and restore native plant communities on remnants of the critically endangered Palouse Prairie. The refuge contains over 1000 acres of this habitat and many more acres occur on private land adjacent to the refuge within the Stewardship Area identified in the CCP. These prairie remnants occur in a unique landscape consisting of mounds and swales. Most of the mounds have been invaded by a host of weed species as a result of past grazing. Typically the perennial grasses and native forbs have been replaced by exotic annual grasses (cheat grass, Japanese brome, and ventanata) and forbs such as dalmatian toad flax, knapweed, and tumble mustard. The goal of this project was to design and implement an adaptive management program to evaluate different strategies to restore the mound areas and to promote the use of these strategies on the refuge and private lands adjacent to the refuge through a local Cooperative Weed Management Area. The effect of every possible combination of Plateau herbicide, soil amendment with carbon in the form of sucrose, and native seed addition the abundance of invasive annual grasses was evaluated. Because of the short-term nature of the graduate position evaluations were only able to be made for one growing season. The effects of all but the herbicide treatment were not readily apparent, but are expected to occur over the next few years . We are proposing to continue this study for an additional 2 years and to include a treatment utilizing rhizobacterium to control cheatgrass. The project will require $30,000 to fund graduate student stipends and to purchase local genetic stock of native species, soil amendments, rhizobacterium , plot fencing supplies , and herbicides.

What is potential for eradication of the invasive species?

Preliminary results indicate that the herbicide treatment was highly effective in controlling exotic annual grasses on the prairie remnants mounds, but also resulted in the loss of some native species. It is our hope that continuation of the study will allow changes in the rate of herbicide application and the identification of other treatments with less collateral damage. This is especially important because these prairie remnants support many sensitive plant species as well as a federally listed threatened species (Silene spaldingii). The outcome of this study could have a much larger landscape level effect as there are literally tens of thousands of acres of this landform in eastern Washington where these strategies could be applied. The Local CWMA has already begun work with 10 landowners interested in doing exotic plant control and to improve the abundance of native species on over 2000 acres.

Does the project support achieving the refuge purpose?

The control of invasive species and restoration of native plant diversity of Palouse Prairie habitats on the refuge and in the landscape surrounding the Refuge are objectives included in the refuge CCP and HMP to meet the goal to "protect and restore the natural distribution and diversity of grassland and shrub steppe habitats to benefit wildlife.**"**

Does the project support biological integrity?

The goal of this project is to restore native plant diversity on Palouse prairies through the control of invasive species and seeding with native species from local genetic stock. The Palouse Prairie is a critically endangered ecosystem with over 90% of it being converted to agriculture. This study and its application will potentially assist with restoring the biological integrity of several thousand acres of this habitat.

Will the project involve support from partners?

The Upper Channeled Scablands Cooperative Weed Management Area will assist with outreach and volunteer recruitment through their newsletters and membership. **Eastern Washington University** will provide additional support for the graduate student including field materials, office space, analytical support, supervision, and transportation. Technical assistance, labor for spraying, and seeding and some cash match will be provided by the partners in the Cooperative Weed Management Area (**Upper Columbia Resource Conservation and Development Council, Spokane County Extension, Spokane County Weed Board, Washington State University Extension, and private landowners)**. Total partner contribution to project: $20,000.00 (mostly in kind services)

What monitoring will be used to evaluate the project?

An experimental design is already in place and involves measuring plant species attributes in 2 X 2-meter plots in each treatment replicate. Each treatment combination is replicated at least 14 times and permanent plots are established in each replicate allowing repeated measure of native and exotic plant species abundance.